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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/885,471	06/20/2001	Sang-Wook Cheong	5-1	3875

7590

04/07/2004

Docket Administrator (Room 3J-219)  
Lucent Technologies Inc.  
101 Crawfords Corner Road  
Holmdel, NY 07733

EXAMINER
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FULLER, ERIC B

ART UNIT	PAPER NUMBER
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1762

DATE MAILED: 04/07/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 09/885,471	<b>Applicant(s)</b> CHEONG ET AL.	
	<b>Examiner</b> Eric B Fuller	<b>Art Unit</b> 1762	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
  - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
  - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
  - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 26 February 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 8-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 8-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some    \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on February 26, 2004 has been entered.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 8-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nagamatsu et al. (Nature - 01 March 2001) in view of Yoshida (US 5,206,216).

Nagamatsu teaches that magnesium bromide is a known superconductor and teaches a method of forming a solid body of  $\text{MgB}_2$  by sintering magnesium and boride powders (page 1, paragraphs 1-3). The reference fails to teach ejecting  $\text{MgB}_2$  from the solid body and growing an  $\text{MgB}_2$  layer on the surface of a substrate.

However, Yoshida teaches that it is desirable to form superconducting wires (column 1, lines 1-35). Laser ablating a solid body of superconducting material and depositing the ejected material on to a substrate produces the superconducting wires (column 2, lines 34-37). It would have been obvious at the time the invention was made to a person having ordinary skill in the art to use the laser ablation/deposition process taught Yoshida on the solid body produced by Nagamatsu. By doing so, superconducting wires are produced.

As to the dependent claims, Yoshida teaches the applicant's substrate (column 2, lines 40-45) and thickness (column 6, line 50). The laser is pulsed (column 3, line 66). Yoshida teaches a reduced pressure process. To determine the pressure would have been within the skill of one practicing in the art, through routine experimentation. As the process taught by Nagamatsu, in view of Yoshida, teaches the same process as the applicant, it must be inherent that the lattice constants of the processes are the same.

Claims 8, 9, and 11-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshida (US 5,206,216) in view of Finnemore et al. (US 2002/0111275 A1 [with priority to provisional application 60/269,095]).

Yoshida teaches the limitations shown above. The reference teaches that the superconductor is an oxide superconductor (column 2, lines 22-25), thus the reference fails to explicitly teach that the superconductor is  $\text{MgB}_2$ . However, Finnemore teaches that it had been recently discovered (January 2001) that  $\text{MgB}_2$  acts as a superconductor

Art Unit: 1762

at 39 K (paragraph 0005). The benefit of using  $\text{MgB}_2$  over oxide superconductors is that  $\text{MgB}_2$  is a simple binary intermetallic superconductor having three atoms per formula unit. It would have been obvious at the time the invention was made to a person having ordinary skill in the art to use  $\text{MgB}_2$  as the superconductor in the process taught by Yoshida. By doing so, one would reap the benefits of the superconductor being a simple binary intermetallic superconductor having three atoms per formula unit.

As to the dependent claims, the arguments above are applicable here.

Claim 10 rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshida (US 5,206,216) in view of Finnemore et al. (US 2002/0111275 A1), as applied to claim 8 above, and further in view of Nagamatsu et al. (Nature - 01 March 2001).

Yoshida, in view of Finnemore, teaches the limitations of claim 1, but fails to explicitly teach sintering  $\text{MgB}_2$ . However, Nagamatsu teaches that sintering magnesium and bromide powders produces a solid body of  $\text{MgB}_2$ , which is required in the process taught by Yoshida, in view of Finnemore. It would have been obvious at the time the invention was made to a person having ordinary skill in the art to sinter  $\text{MgB}_2$  in the process taught by Yoshida, in view of Finnemore. By doing so, a solid body of  $\text{MgB}_2$  is produced.

### ***Response to Arguments***

Applicant argues that the affidavit filed on February 26, 2004 overcomes the rejections of the prior Office Action. The examiner agrees that the applicant has shown

Art Unit: 1762

diligence from March 9<sup>th</sup>, 2001 to the filing of the provisional application. The examiner has withdrawn the rejections of the previous Office Action accordingly. The applicant's arguments are moot in view of the new grounds of rejections.

### ***Conclusion***


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eric B Fuller whose telephone number is (571) 272-1420. The examiner can normally be reached on Mondays through Thursdays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shrive P Beck, can be reached at (571) 272-1415. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



EBF



**MICHAEL BARR**  
**PRIMARY EXAMINER**